

AMENDMENTS TO THE CLAIMS

1. (Previously presented) A method of organ augmentation comprising the steps of:
transiently transfecting a first population of cells with a plasmid encoding the angiogenesis modulating agent VEGF;
selecting a second population of cells to be assimilated at a target tissue region upon implantation,
suspending the first population of cells and the second population of cells in an injectable polymer matrix;
injecting the first population of cells and the second population of cells and the polymer matrix into the target tissue region where the first population of cells will express the VEGF angiogenesis modulating agent, thereby inducing assimilation and differentiation of the second population of cells in the target region and augmenting organ function.
2. (Previously Presented) The method of claim 1, wherein the step of transfecting the first population of cells comprises transiently transfecting the cells such that the angiogenesis modulating agent is produced for less than three weeks.
3. (Previously Presented) The method of claim 1, wherein the first population of cells comprises undifferentiated cells.
4. (Previously Presented) The method of claim 1, wherein the first population of cells comprises vascular endothelial cells (EC).
5. (Canceled)
6. (Previously Presented) The method of claim 1, wherein the second population of cells comprises myoblasts.
7. (Withdrawn) The method of claim 1, wherein the second population of cells comprises endothelial progenitor cells (EPC).

8. (Previously Presented) The method of claim 1, wherein the polymer matrix comprises collagen.
9. (Previously Presented) The method of claim 8, wherein the polymer matrix comprises collagen type I.
10. (Previously Presented) The method of claim 1, wherein the step of transiently transfecting the first population of cells further comprises:
 - encapsulating the transfected first population of cells;
 - suspending the encapsulated first population of cells and the second population of cells in an injectable polymer matrix
 - injecting the encapsulated first population of cells and the second population of cells and the polymer matrix into the target tissue region where the encapsulated first population of cells will express the VEGF angiogenesis modulating agent, thereby inducing assimilation and differentiation of the second population of cells in the target region and augmenting organ function.
11. (Canceled)
12. (Previously Presented) The method of claim 1, wherein the first population of cells comprises myoblasts.
- 13.–22.(Canceled)
23. (Previously presented) A method for augmenting organ function comprising:
 - transiently transfecting a first population of cells with a plasmid encoding an angiogenesis modulating agent;
 - culturing at least a second population of cells on a matrix material to produce an organ construct, wherein the second population of cells comprises cells of a different cell type than the first population; and
 - implanting the organ construct and the first population of cells *in vivo* at a target site to replace or augment organ function, such that the first population of cells express

the angiogenesis modulating agent thereby inducing the second population of cells to assimilate and differentiate at the target site.

24. (Original) The method of claim 23, wherein the matrix is decellularized tissue.
25. (Original) The method of claim 23, wherein the matrix is a hydrogel.
26. (Original) The method of claim 23, wherein the matrix is a polymer.
27. (Canceled)
28. (Original) The method of claim 23, wherein the angiogenesis modulating agent is VEGF.
29. (Currently Amended) The method of claim 23, wherein the method further comprises assimilating the ~~encapsulated~~ first population of cells into a tissue layer.
- 30.-32.(Canceled)
33. (Previously Presented) The method of claim 23, wherein the step of transiently transfecting the first population of cells further comprises:
 - encapsulating the transfected first population of cells and
 - implanting the organ construct and the encapsulated first population of cells *in vivo* at the target site to replace or augment organ function such that the first population of cells express the angiogenesis modulating agent and the second population of cells assimilate and differentiate at the target site.
34. (Previously Presented) The method of claim 10, wherein the step of encapsulating the transfected first population of cells further comprises using microspheres.
35. (Previously Presented) The method of claim 10, wherein the step of encapsulating the transfected first population of cells further comprises using alginate-PLL capsules.
36. (Previously Presented) The method of claim 33, wherein the step of encapsulating the transfected first population of cells further comprises using microspheres.

37. (Previously Presented) The method of claim 33, wherein the step of encapsulating the transfected first population of cells further comprises using alginate-PLL capsules.
38. (Withdrawn) The method of claim 1, wherein the first population of cells comprises endothelial progenitor cells.
39. (Withdrawn) The method of claim 23, wherein the first population of cells comprises endothelial progenitor cells.
40. (Previously Presented) The method of claim 23, wherein the first population of cells comprises vascular endothelial cells (EC).
41. (Previously Presented) The method of claim 23, wherein the first population of cells comprises myoblasts.
42. (Withdrawn) The method of claim 23, wherein the second population of cells comprises endothelial progenitor cells.
43. (Previously Presented) The method of claim 23, wherein the second population of cells comprises myoblasts.